Public Works (1913) Department.

G.O. No. 2669

DATED 9.5. 1913.

The Notes
in this G.O. have been printed.

[Despatch Abstract.]

Karakulam Tank, Melur Taluk, Periyar system Sanctions with remarks an estimate of Rs 3296 inclusive of Establishment charges for improvements to the ———

P. W. 9.
[2,000—2-10-12.]

Indexed.

Registered as 30-I of 1913-14.

9-5-13

15/5/13

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Government of Madras.

PUBLIC WORKS DEPARTMENT.

IRRIGATION
ACCOUNT.

Recd.	1913.	*Enclosures*
Regd.		*Spare copies*

G.O. No. 266 I., 9th May 1913.

Karakulam Tank, Melur taluk, Periyar system.

Sanctioning, with remarks, an estimate of Rs. 3,296 inclusive of establishment charges for improvements to the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

I

Letter—from S. B. MURRAY, Esq., Superintending Engineer, VI Circle.
To—the Chief Engineer for Irrigation.
Dated—Trichinopoly, the 19th March 1913.
No.—462 C.E./864 A.

I have the honour to forward herewith for your approval and sanction of Government an estimate amounting to Rs. 2,420 for improvements to the Karakulam tank (one of those ordered to be maintained in G.O. No 1250 I., dated 15th December 1905) situated at the extreme tail end of the 9th Distributary of the XII Branch Channel, Periyar System.

2. The proposed improvements consist of—

	RS.
(i) The construction of revetment to the bund in places where it is subject to severe wave action	565
(ii) Construction of two cement pipe sluices 6" diameter and one cement pipe sluice 9" diameter as shown on plans M. Nos. 96 D. & F. of 1912 and 95-E of 1912, respectively	660
(iii) Construction of a weir on design S.E. VI No. 12 of 1913 ...	1,195
Total ...	2,420

3. It will be seen from the revenue statement attached to the estimate that consequent on the proposed outlay, there will be an increase in revenue by Rs. 82.

4. The cost of the existing sluices proposed to be replaced by new sluices, viz., Rs. 9 should be written back from the Capital to the Revenue Account of the Periyar System, with reference to Public Works Code, paragraph 1921.

5. The proposal of the Executive Engineer to abandon the Karakulam tank, has not been approved by the Collector of Madura (*vide* his letter No. D. Dis. 2798, Revenue, dated 13th August 1912, copy enclosed), and it may therefore be left as it is.

6. The necessity for, and the details of, the works proposed are explained in the report attached to the estimate.

7. The work will be completed before the end of March 1914.

8. An estimate amounting to Rs. 610 for repairs to the tank will be sanctioned by me as soon as the estimate for improvements to the tank is received sanctioned.

ENCLOSURES.

(1)

Report to accompany the estimate for improvements to the Karakulam tank, Melur taluk.

	RS.
Amount of estimate	2,420

1. *Situation and source of supply.*—The tank is situated about $1\frac{1}{2}$ furlongs to the north of Pudupatti, a hamlet of No. 86, Ambalakaranpatti village, Melur taluk. In addition to the drainage from its free basin and the intercepted catchment of 11 maintained upper tanks, it receives an indirect supply of Periyar water through a branch of the sub-distributary of D9. B.C. 12, through Siruman kanmoy.

9th Distributary XII Branch Channel.

2. *Surplus arrangements.*—It surpluses through temporary cuts made by the ryots at the right flank, into an inam tank called Pillakulam the surplus of which goes to Keelapanangadu kanmoy. As the cuts are inadequate to discharge the calculated maximum flood water a calingulah 131′ 6″ long with 36 vents of 3′ each and 37 dam stones 6″ square, with crest body wall 1′ below the F.T.L. and the top of dam stones at F.T.L. is now proposed at the right flank to dispose of the maximum flood discharge entering the tank with a head of 2′ 0. The surplus water flows in a mamool course which runs partly through Government waste lands and partly through pattah wet lands and no improvements are necessary for the surplus channel at present.

3. *Bund.*—The existing bund, from L.S.O. to 2,350 feet and to the right of the proposed calingulah where it joins the bund of Karungudi kanmoy will be made up to 3′ above M.W.L. with top width 4′ and side slopes $1\frac{1}{2}$: 1 and 2 : 1 in front and rear respectively. The top and 1′ on either slope of the bund will be gravelled 3″ thick (please *vide* repair estimate).

4. *Revetment.*—The bund throughout is unrevetted. Between C.S. 5 and L.S. 1,320 feet where the front bed is deepest and the rear wet fields lowest (as can be seen from the C.S. in these portions) new revetment (to M.W.L.) has been provided to protect the bund from erosion by wave action.

5. *Sluices.*—The irrigation of the ayacut lands is at present carried on by two dilapidated pot sluices, both of which will be abandoned and new pipe sluices will be constructed in their stead. A third pipe sluice at the right flank will also be required for irrigating the high level and waste lands to be brought under cultivation after they have been auctioned.

F.T.L.—The F.T.L. has been fixed from local enquiries and with reference to mamool submergence of foreshore lands (*vide* Collector's D. Dis. No. 146, Revenue, dated 14th January 1912—copy enclosed, with a statement of lands submerged under F.T.L).

Rates.—Necessary data are enclosed for all the rates allowed in the estimate.

V. HART,
Executive Engineer, Madura Division.

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(2)

Letter— from the Collector of Madura.
To—the Executive Engineer, Madura Division.
Dated—the 13th August 1912.
No.—2798/Rev.

With reference to your letter No. 1054 M., dated 13th June 1911, I have the honour to return herewith duly countersigned the revenue statement received from you, and to state that, as the Karakulam tank is at the tail end of Periyar Irrigation, the Divisional Officer reports that it is useful in times of scarcity of water and that it may be retained. The tank need not therefore be abandoned.

2. The plan is herewith returned.

No. 832 *S.E., dated 28th August* 1912.

Copy forwarded to the Superintending Engineer, VI Circle, for information with reference to the last paragraph of the report attached to the estimate for improvements to the Karakulam tank submitted for sanction in this office No. 713 S.E., dated 30th July 1912, and for making necessary notes on the report of the estimate under reference. The tank may therefore be treated as a supplemental one under Karakulam tank.

The plan and the revenue statement verified by the Collector are herewith sent and these may be enclosed in the estimate under reference in the Superintending Engineer's office.

V. HART,
Executive Engineer, Madura Division.

SUB-ENCLOSURE.

UPPAUR ODAI MINOR BASIN, MADURA DISTRICT.

KEELAPANANGADI TANK GROUP.

Keelapanangadi tank sub-group.

No. 78, Karakulam tank, *vide* G.O. No. 1250 I., dated 15th December 1905.

The tank is situated about $1\frac{1}{2}$ furlongs to the north of Pudupatty, hamlet of No. 8 Ambalakaran Patti village, Melur taluk. It receives 1,928·5 cubic feet of flood discharge from its combined and free basin, in addition to the indirect supply of Periyar water, and surpluses into Inam Illakulam tank.

Hydraulic calculations of Karakulam kanmoy.

Free catchment basin	0·50 square miles.
Intercepted basin	9·96 ,,
Combined catchment basin	10·46 ,,

$$Q = C.M.^{\frac{2}{3}} - c.m.^{\frac{2}{3}} = 500\,(10{\cdot}46)^{\frac{2}{3}} - 100\,(9{\cdot}96)^{\frac{2}{3}}.$$
$$= 2{,}391{\cdot}4 - 462{\cdot}9 = 1{,}928{\cdot}5 \text{ cubic feet}.$$

Discharge provided for through the calingulah—

(i) Between damstones, using the formula.

$$D = C.L.\sqrt{2gh}\left(h_1 - \frac{h}{3}\right); \text{ where } L = 3 \text{ feet and } C = 0{\cdot}578.$$

$$= 0{\cdot}578 \times 3 \times 8 \times 1 \times \tfrac{8}{3} = 0{\cdot}578 \times 64 = 36{\cdot}99 \text{ cusecs}.$$

(ii) Discharge over damstones of 6 inches square will be —

$$D = C.L.\sqrt{2gh}\left(h_2 - \frac{h}{3}\right); \text{ where } C = 0{\cdot}582.$$

$$D = 0{\cdot}582 \times \tfrac{1}{2} \times 8 \times \tfrac{5}{3} = 3{\cdot}88 \text{ cusecs}.$$

Total discharge centre to centre of damstones for one vent = 36·99 + 3·88 = 40 87 cusecs.

∴ The length of weir required will be :—

(*a*) 46 vents of 3 feet each	138 feet.
(*b*) 47 damstones 6 inches square	$23\frac{1}{2}$,,
(*c*) $2\frac{1}{2}$ feet flush weir at ends	5 ,,
Total ...	$166\frac{1}{2}$,,

Discharge through (*a*) = 46 × 36·99 = 1,701·54 cusecs.
Discharge through (*b*) and (*c*) $28\frac{1}{2}$ × 3·88 × 2 = 224 16 cusecs.
Total discharge provided for = 1925·70 cusecs
against 1,930·00.

STANDARD TO BE MAINTAINED.

F.T.L.	+ 41·25 ft.
M.W.L.	+ 46·25 ,,
Top of bund	+ 49·25 ,,
Top width	4 ,,
Side slopes	$1\frac{1}{2}$ and 2 to 1 in front and rear.

Height of revetment above F.T.L.—*Nil.*

BENCH MARKS.

I.—B.M. on a demarcation stone marked ⊙ at L.S. 175 feet on bund at L.F.	45·46 ft. (assumed.)
II.—B.M. on a demarcation stone marked ═ at junction of bunds of Karungudy and Karakkulam	45·12 ,,

MAXIMUM DISCHARGE TO BE PROVIDED FOR.

Co-efficients, C = 500 ; *c* =	100.
Area of free basin	0·50 sq. mile.
Number of tanks above ...	11.
Combined catchment area ...	10·46 sq. miles.
Maximum discharge from combined catchment area.	1,928 c. ft.
Maximum discharge from channel	*Nil.*
Total discharge to be provided for	1,928 ,,

DETAILS OF STORAGE.

Area of waterspread at F.T.L.	2·18 mills. sq. ft.
Capacity of tank at F.T.L.	4·90 mills. c. ft.

SURPLUS ARRANGEMENTS.

Effective length of masonry escapes	*Nil.*
Proposed calingula length	$166\frac{1}{2}$ ft.
Effective length of bye-washes	*Nil*
Discharge over total length.	1,928 c.ft.
Total maximum discharge provided for	1,928 ,,

DETAILS OF IRRIGATION.

Ayacut area	.. ..
Average cultivation ...	...
Proposed ultimate area ...	56·75 acres.
Water stored per acre ...	...

LEVELS OF SLUICES.

Sill of 6 inches pipe sluice No. 1, from the left flank.	41·00 ft.
Sill of 6 inches pipe sluice No. 3, from the left flank.	39·50 ,,
Sill of 9 inches pipe sluice No. 2, from the left flank.	37·50 ,,

(3)

Letter—from A. R. LOFTUS-TOTTENHAM, Esq., M.A., I.C.S., Acting Collector of Madura.
To—the Executive Engineer, Madura division.
Dated—the 14th January 1912.
No.—D. Dis. 146/Rev.

With reference to your No. 1518 M., dated 14th August 1911, I have the honour to forward herewith a copy of the report D. Dis. No. 2824-Rev., dated 23rd December 1911, of the present Tahsildar of Melur from which it will be seen that all the lands referred to in the statement furnished by you are subject to mamool submergence.

2. The sketch and the lists received from the Tahsildar are herewith sent.

SUB-ENCLOSURES.

(i)

Letter—from the Tahsildar of Melur.
To—the Deputy Collector, Melur division.
Dated—the 23rd December 1911.
No.—D. Dis. 2824/Rev.

With reference to your R.O.C. No. 1269-Collr. of 1911, dated 4th September 1911, I beg to submit herewith a statement showing the depth of submergence of the several foreshore lands in the tank in question according to the owner's statement. Their estimate in respect of all the fields except 991 A, B and C tallies more or less with that of the Public Works Department officers. The owners of survey numbers 991 A, B and C above estimate the depth of the water in their fields at half a foot while it is estimated at about 1½ feet by the Public Works Department authorities. Inasmuch as the estimate of Public Works Department authorities is correct in almost all the cases their estimate in respect of survey No. 991 also must be correct.

2. In these circumstances it should be concluded that all the lands shown in the statement furnished by the Executive Engineer must be considered to be subject to mamool submergence. The tank was inspected by me in company with the Public Works Department Supervisor in September last. I thought I would inspect the tank once more in November or December when it is full, but it has not received full supply yet to admit of personal verification.

3. The enclosures received are herewith resubmitted.

(ii)

REVENUE statement to accompany the estimate for No. 13, Karakulam tank.

Name of village, taluk, tank, etc.	Existing wet.			Patta dry.		Irrigable waste.				Irrigable tank bed.				Total revenue.
	Area in acres.	Old revenue.	Increase in revenue.	Area in acres.	Revenue as single crop wet.	Area in acres.	Revenue as single crop wet at 5/8 per acre.	Probable sale-proceeds at Rs. 25 per acre.	4 per cent. on sale-proceeds.	Area in acres.	Revenue as single crop wet at Rs. 5.	Probable sale proceeds at Rs. 25.	4 per cent. on sale proceeds.	
		RS.			RS.		RS.	RS.						RS.
Karakulam kanmoy of No. 86 Ambalakaranpatti village, Melur taluk.	43·21	237	..	5·82	32	7·72	42	193	8	..	..	..	..	319

NOTE.—Increase in revenue Rs. 82.

I).

Note by the Chief Engineer for Irrigation, R.O.C. No. 1047/13, dated 3rd May 1913.

With his letter No. 462 C.E., dated 19th March 1913, the Superintending Engineer, VI Circle, submits an estimate amounting to Rs. 2,420 for improvements to the Karakulam tank, Periyar system, Melur taluk, Madura district. The estimate provides for :—

	RS.
(1) Constructing a masonry calingula 131½ feet long at right flank in place of the existing cuts in the bund	1,195
(2) Constructing three pipe sluices	660
(3) Providing revetment to the front slope of the bund at the deep portion for a length of 345 feet	565
Total ...	2,420

As the length of the calingula as designed by the Executive Engineer is considered inadequate owing to an error found in the calculation of discharges over the crest, it has now been increased from 131½ to 166½ feet. The front head wall of the proposed sluice at 615 feet is not long enough and it has, in this office, been extended to suit a slope of 1½ to 1. These alterations have raised the amount of the estimate from Rs. 2,420 to Rs. 2,680.

2. The tank has, at present, an ayacut of 43·21 acres yielding a revenue of Rs. 237. It is now proposed to increase the ayacut to 56·75 acres by converting certain dry and waste lands to the extent of 13·54 acres into wet with an anticipated increase of Rs. 82 in revenue.

3. The estimate as altered in this office is recommended for sanction.

H. E. CLERK,
Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department,
Irrigation Branch.

Order—No. 266 I., dated 9th May 1913.

The following estimate is sanctioned :—

Imperial.
Irrigation.
49. Capital expenditure not charged to Revenue.
Periyar system.
Open capital account.
I. Works.
3. Distributaries.
C. Works.
Remunerative work.
Improvements to Karakulam tank, Melur taluk.

Estimate—

	RS.
I. Works	2,680
II. Establishment	616
Total ...	3,296

2. The sanction accorded in paragraph 1 above is registered as No. 30 I. of 1913-14 and will expire on the 31st March 1914.

3. The attention of the Superintending Engineer is drawn to paragraph 1 of the foregoing note by the Chief Engineer for Irrigation.

4. The sum of Rs. 9 referred to in paragraph 4 of the Superintending Engineer's letter read above will be written back by the Accountant-General from the Capital to the Revenue Account of the Periyar system.

(True Extract.)

H. E. CLERK,
Joint Secretary to Govt., P.W.D.
(Irrigation Branch).

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle, with plans and estimates.
,, Accountant-General, Madras.

PUBLIC WORKS DEPARTMENT
(IRRIGATION BRANCH).

NOTES CONNECTED WITH G.O. No. 266 I., DATED 9TH MAY 1913.

[SUBJECT.—*Estimate of Rs. 3,296 for improvements to the Karakulam tank, Melur taluk, Periyar system.*]

Note by the Chief Engineer for Irrigation, R.O.C. No. 1047/13, *dated 3rd May* 1913.

Under Secretary—
Joint Secretary—

A draft order sanctioning the estimate is submitted which, if approved, may issue.

T.S.R.—4-5-13.
A.V.S.—4-5-1

F. E. MORGAN—5-5-13.

Issue.

H. E. CLERK—5-5-13.

[Issued as G.O. No. 266 I., dated 9th May 1913.]

12

E.D.'s office

Mp 1-2 cf. from the S.E., VI Circle, dy 19.3.13 No 462 CE / 864 A

Printed Mp 1-11 cf.

Note by the Chief Engineer for Irrigation.

Roc No 1047/13 d/ 3.5.13.

Mp 1 & 2 cf.

With his letter No.462 C.E., dated 19th March 1913, the S.E., VI Circle, submits an estimate amounting to Rs. 2,420 for improvements to Karakulam tank, Periyar system, Melur taluk, - Madura District. The estimate provides for,-

1. Constructing a masonry calingulah 131½ ft long at right flank in place of the existing cuts in the bund.	1195
2. Constructing 3 pipe sluices	660
3. Providing revetment to the front slope of the bund at the deep portion for a length of 345'	565
Total Rs.	2420

2662

V4

As the length of the calingulah as designed by the E.E., is considered inadequate owing to an error found in the calculation of discharges over ~~the calingulah~~ the crest, it has now been increased from 131½ to 166½ ft. The front ~~and rear~~ head walls of the proposed sluice at 615 ft ~~are~~ is not long enough and ~~they have~~ it has, in this office, been ~~proposed to be~~ extended to suit a slope of 1½ to 1 ~~the slopes allowed for the bund.~~ These alterations have raised the amount of the estimate from Rs. 2,420 to Rs. ~~2,600~~ 2680.

2. The tank has, at present, an ayacut ~~area~~ of 43.21 acres yielding a revenue of Rs. 237. It is now proposed to increase the ayacut to 56.75 acres by converting certain dry and waste lands to the extent of 13.54 acres into wet with an anticipated increase of Rs.82 in revenue ~~by improving the tank~~.

3. The estimate as altered in this office is recommended for sanction with the following remark:-

The

14

The proposed vent in the side wall 11

of the cistern in rear of the sluice

at 2000 ft should be so located during execution that

the irrigation channel from it may not

damage the rear slope of the bund at

the site ~~during execution~~.

PK
24/4/13

[signature] 29/4/13

[signature] 3/5/13

To

The Joint Secy. to Govt.
~~PWD~~ (I)

2668

16

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

Tabling Abstract.

Karakulam Tank (Melur taluk), Periyar System. Sanctioning, with remarks, an estimate of Rs 3296 inclusive of estab^t charges for improvement to the ____

Cross References.

Poovyal Tank } Madura Do

Read the following :—

Note by the Chief Engineer for Irrigation ROC No 1027/13 d/ 3. 5. 13.

M 12-140 f

Circulated to

ORDER—No. 2669, dated 9. 5. '13

Recs.

The following estimate is sanctioned :—

Imperial.

Irrigation.

49- Capital expenditure not charged to Rev.

Periyar System.

Open capital acct

2669

I. Works. 13. B

3. Distributaries

C - Works.

Remunerative wor

Improvements to

Karakulam Tan

Melur Taluk.

Estimate –

	Rs
I Works	2680
II Estabt	616
	3296

2680
23
8040
5360
61640

2. The sanction ac-corded in para 1 abov is registered as No 30- of 1913-14 and will ex-pire on the 31st March 1914.

3. The attention of the SE is drawn to para of the foregoing note by the E.E.

4. The sum of Rs 9 referred to in para 4

2068

3

3

14 (

Of the S.E's letter read above will be written back by the A.G. from the cap to the Revenue acct. of the Periyar System.

[illegible] 4.5.13

[illegible] 7/5/13

[illegible] 5/5/13

To
The Chief Engr for Irrigation ✓
" S.E., VI Circle with plans & estimates ✓
" A.G. Madras ✓

Dsp. 15/5/13
MS
No. dsp 3/7/13

Proof Note

DESPATCHED
3 JUL 1913

2668